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Analysis of Khrushchev's New Livestock Goals

I. Introduction

Beasts of the USSR's industrial might and promises that she will catch up with and surpass the Western States in industrial production have long been common claims of Soviet orators. This has not been the case, however, in the field of agriculture and especially not for the production of milk and meat. Indeed, in his famous speech of September, 1953 Khrushchev singled out livestock production as the most backward segment of agricultural production. <sup>1/</sup> In this speech he revealed that the numbers of dairy cows and of all cattle was even less than in 1916 and that only modest increases had been achieved for hogs, sheep, and goats. This is in sharp contrast with Khrushchev's May 22, 1957 speech delivered in Leningrad when he implied that in 1956 milk output had attained a level of approximately 49 million tons and meat output approximately 6.5 million tons. <sup>2/</sup> In the same speech Khrushchev boasted that by 1958 the USSR would attain a milk output per capita equal to that of the United States and that by 1960 (or 1961) Soviet meat output per capita would also equal that of the U.S. <sup>3/</sup>

Although Khrushchev's milk goal for 1960 is apparently in line

<sup>\*</sup> The highest reported prewar, postcollectivization output of these products was 3.3 million tons of meat and 28.9 million tons of milk in 1936. <sup>4/</sup> Prior to collectivization the high for meat was 4.55 million tons in 1929 (reflecting peasant slaughtering caused by forced collectivization meat in 1928 had only been 3.94 million tons) and 30.49 million tons of milk in 1928. <sup>5/</sup>

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with the original very high Sixth Five-Year Plan goals, this was the first time the claim was made that the USSR is on the verge of catching up with the U.S. in the production of either milk or meat. The meat goal was advanced drastically, for in his speech, Khrushchev called for increasing meat production three and one-half times between 1956 and 1960, whereas the Sixth Five-Year Plan called for doubling meat output between 1955 and 1960.<sup>6/</sup> Western analysts have generally considered both original goals impossibly high.

In his Leningrad speech Khrushchev openly admitted that some of his own "economists" had calculated that the USSR per capita output of livestock products could not be raised to United States levels until 1975. <sup>7/</sup> Casting the advice of these people aside, Khrushchev established the goals cited above, while praising the collective farm leaders who were making big output pledges which, if universally achieved, would permit attainment of the Khrushchev goals. At least two reasons may account for Khrushchev's failure to accept the views of his economists. Undoubtedly the record grain crop of 1956, including a bumper harvest in the new lands areas (with admittedly the best rainfall in these areas in 42 years) has bolstered Soviet hopes. Khrushchev's new boasts may also be part of an important planned propaganda campaign; his remarks have been given the widest of distribution within the USSR and Khrushchev took the opportunity afforded by his U.S. television interview to repeat his boast that the USSR is on the verge of equalling the U.S. in the production of meat and milk. He stressed that these goals give the lie to Western claims that the Soviet Union is negligent in its concern for

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the production of consumer's goods. Furthermore, in the Leningrad speech, he emphasized that the achievement of his meat and milk goals would deal a blow to the West that is even "more important than bombs."<sup>8/</sup>

Even considering the good 1956 grain harvest, Khrushchev's great optimism for the near future in livestock production, especially in the case of meat, remains unexplained. While he recited again that increased emphasis is to be given to hogs, as a rapidly reproducing form of livestock, and showed for the first time the intention to slaughter cattle in their second year rather than as yearlings, his boasts were not accompanied by any indication of the source of the extra quantities of feed (the key to any major short run increases in Soviet livestock output) necessary for the achievement of his goals. <sup>9/</sup> Indeed the only concrete evidence given by Khrushchev that may be regarded as support for his claims is his enthusiastic report that the meat procurement goals for the first four months of 1957 were overfulfilled. <sup>10/</sup> Nevertheless, several qualifications to this claimed achievement must be listed: 1) Procurements are but a fraction of total meat production and thus may vary considerably without actually reflecting total <sup>output</sup> ~~exp.~~ 2) As Khrushchev noted in his Leningrad speech, procurements during the early part of the year are proportionately lower than in the remainder of the year (in the first one-third of 1956 meat and milk procurements were less than one-fourth of the year's total). 3) The first part of the 1957 agricultural year was a period in which the feeding benefits of the record grain harvest of 1956 should have appeared. 4) The press had reported that at the request of republic

*See also 1957  
1956-1957  
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Councils of Ministers 1957 procurement goals, although probably still above those of 1956, had been reduced below the original 1957 targets.<sup>11/</sup>

The following also casts doubt on the realism of Khrushchev's goals. 1) According to Soviet claims, milk output during 1956 increased by an unprecedented 16% over 1955, but the reported increase in meat output was less than 3%.\* 2) In recent years Khrushchev has continually championed corn as the "queen" of field crops, categorically asserting that, "it is clear that the struggle for an increase in milk and meat output is primarily based in the struggle for more corn."<sup>12/</sup> Yet, a Soviet press report indicates that the planned corn acreage for 1957 is 17-18 million hectares, which is a 25% reduction from the 1956 acreage of 23.9 million hectares.<sup>13/</sup> This cutback suggests that the corn area was expanded too rapidly. However, the reduction may be only temporary since there has been no firm indication that the Sixth Five-Year Plan goals for corn have been reduced.

The strongest evidence that Khrushchev's boasted new livestock goals are nothing more than propaganda claims lies in an analysis of the Soviet feed potential. The 1960 feed goals announced by Khrushchev in January, 1955 were apparently inadequate to achieve the original Sixth Five-Year Plan livestock goals.<sup>14/</sup> Furthermore, Khrushchev's new goals have not been accompanied by any published revisions of feed output goals, nor does there seem to be any rational explanation of how any

\* These percentage increases for 1956 over 1955 are calculated on the basis of materials presented in the 1956 fulfillment report,<sup>15/</sup> and the percentage increases for the years 1950-1955 are reported in the official handbook.<sup>16/</sup>

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upward revisions, if made, could be achieved. Although there is indication that much greater reliance is to be given to potatoes as a source of feed, especially for hogs (see below) the possibilities for using potatoes as hog feed would seem to be limited in the Russian situation.

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Sources to the Introduction

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1. FBIS, 18 Sept 53, p. CC 1-77. Restricted. Eval. RR 2.
2. FBIS, 24 and 27 May 57, p. CC 2-17 and 1-5. Eval. RR 2.
3. Ibid.
4. Diamondé, Douglas Jr., Agricultural Statistics of the USSR (Council for Economic and Industry Research, Inc.) Washington, D. C., June 1955, p. 151 and 153.
5. FBIS, 24 and 27 May 57, p. CC 2-17 and 1-5. Eval. RR 2.
6. Ibid.
7. Ibid.
8. Ibid.
9. Ibid.
10. Ibid.
11. Pravda, 6 Feb 57, p. CC 14. C. Eval. RR 2.
12. FBIS, 11 Feb 57, p. CC 14, C. Eval. RR 2.
13. Narodnoye Khozyaistvo SSSR (Moscow, 1956). U. Eval. RR 2, p. 101.
14. FBIS, 15 Mar 57, p. CC 1-15; Eval. RR 2.
15. "In the Fields of the State" Sel'skoye Khozyaistvo, 9 May 57, p. 3. Eval. RR 2.

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## II. The Soviet Feed and Livestock Potential

### A. Factors Affecting Livestock Output

Important elements affecting the Soviet potential for increasing livestock production are the agricultural "institutions" (here meant to include the decision-making, resource-allocating, and incentive apparatus), and the number and genetic quality of livestock. However, these factors will not be considered in detail in this analysis, and attention will be concentrated on the possibilities for feed production and use. The estimate of livestock "potential" developed in this paper is a maximum which will not be exceeded, rather than a best estimate.

Soviet agricultural institutions will probably not be radically changed during the period 1957-61<sup>1</sup>. The only institutional change thus far publicized which appears to be specifically related to the new livestock goals, is Khrushchev's proposal at Leningrad to eliminate compulsory deliveries of livestock products from private production.<sup>1/</sup> The implementation of this change will probably stimulate the production of these products.

In this analysis little attention is given to the problems of the quality and quantity of Soviet livestock. This does not mean that these problems are unimportant, but rather that on the one hand they are so complex as to defy quantitative analysis, and

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<sup>1/</sup> FBIS #102, 27 May 1957, CC2

\* For a discussion of the agricultural institutions see Section \_\_\_\_\_ of this paper, "Soviet Agricultural Policy Since the Death of Stalin"

that on the other hand assuming the problems away (by the use of U.S. feed input - livestock output analysis) does not negate the important conclusions of this analysis.

It is not clear just what numbers of livestock would constitute an optimum for the Soviets either now or in 1961-62. There is some reason to believe that the Soviets are now underfeeding, i.e. that they could produce more product from the same feed if they had fewer head of stock.<sup>1/</sup> Quite possibly, however, the achievement of optimum numbers in 1960-61 would require some increases over the present. Khrushchev, in his speech at the opening of the Agricultural Exhibition,<sup>2/</sup> indicated a planned 40% increase in the number of cattle in the next four years, or 8-10% per year. — 8 million more cattle

Yet from 1953 to 1956 there have been yearly increases of only 3 to 5%. In the same speech<sup>3/</sup> Khrushchev said that sheep numbers must increase by 40 million by 1960. The increase from 1953 to 1956 has been only 15 million.

Various observers have indicated that Soviet animals are generally of a relatively unproductive type as compared to U.S. livestock. The U.S. has made large investments over a long period in upgrading its stock. The Soviets have not concentrated attention on upgrading and have not had an incentive system which

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<sup>1/</sup> ECE

<sup>2/</sup> FBIS, 3 June 57, pp. CC 2-9, Eval. RR 2.

<sup>3/</sup> Ibid.



B. The Use of Feed Input-Livestock Output Relations

Although livestock output is a function of many variables other than feed, such as the genetic quality of the livestock, production per head of stock, housing of the animals, breeding practices, the use of a multitude of "feed additives,"\* etc., in the U. S. there appears to be sufficient stability in gross feed input-livestock output relations to make them of some use for predictive purposes.\*\*

One can be confident that the use of U. S. feed input-livestock output ratios will not underestimate the possible feeding efficiency of the Soviet Union by 1960-61. The U. S. economic system provides powerful incentives for efficient feeding of livestock. U. S. feeding rates, however, are probably more useful for an evaluation of future Soviet performance than would be past Soviet feeding rates (which, in any case, are not available). This is so because the Soviets can be expected to achieve considerably greater output per animal in the future than in the past, and the composition of feed consumed must shift from the past Soviet pattern of a high proportion of roughages\*\*\* to a composition more closely approaching U. S. feed including a higher proportion of concentrates\*\*\*. The Soviets do not seem to have a

\* "Feed additives" include such substances as vitamins, minerals, hormones, and antibiotics, which often greatly increase the efficiency of feed, when added to the ration in small quantities.

\*\* For a discussion of the stability through time of the gross feed input-livestock output relations in the U. S., see 1/

\*\*\* "Roughages" and "concentrates" are two of the several categories into which livestock feeds are commonly divided. "Roughages" include hay, straw, corn stover, etc; while "concentrates" include grains, oilseed cake, etc.

1/ Mighell and Scoville, "Economic Effects of Progress in Animal Feeding, "Agricultural Economics Research, Oct 1956, p. 119

large potential for increasing pasture output, and the feed from many types of roughage is apparently utilized fairly completely now.

In the following sections an estimate is made of the maximum feed available in the Soviet Union by 1960 and is contrasted with an estimate of the minimum feed required to achieve Khrushchev's goals. The great difference between the estimated maximum feed availability and minimum feed requirements provides a firm basis for the conclusion that Khrushchev's livestock goals are unattainable.

C. Feed Availability in 1960

In Table 1, Appendix I, are given estimates of the production and utilization of all important feeds in the Soviet Union by 1960. The methodology for the estimates is given in Appendix I. Table 1, Appendix I, indicates a maximum total feed availability of 212 million metric tons of feed units\* in 1960. This is considered to be an estimate of a limit which can confidently be expected not to be exceeded, rather than a best estimate.

The estimates of production (col. 1 of Table 1, Appendix I) for the grains, potatoes, silage and hay and coarse fodder are best estimates under conditions of average weather, and not maximums. Production in any particular year can be significantly higher or lower than the given estimate, depending on the vagaries of the weather. The estimate for root and fodder crops assumes attainment of the announced goal and is probably a maximum.

\* A feed unit as used here is the feeding value of a pound of shelled corn. Other feeds are converted to feed units on the basis of factors which make them roughly comparable. 1/  
1/ R. D. Jennings, "Feed Consumed by Livestock, 1941-42 by States"  
U. S. Department of Agriculture, Washington, D.C., 1946, p. 14

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The estimates for non-feed utilization (columns 2-5 of Table 1, Appendix I) and the residual for feed, exports and stocks (col. 6) are "best" estimates rather than ~~maximums~~. The estimates of the relative feed value of the various feeds in relation to corn (col. 7) are "best" estimates with the possible exception of the relative feed value of hay and coarse fodder (0.4) which tends to be a ~~maximum~~.

The estimates of available feed (col. 8) include grain for export and for stocks as well as grain that will be actually fed. The need for increased quantities of grain for exports and for stocks was one of the reasons given by Khrushchev for urging increased grain production. <sup>1/</sup> Hence, the estimate of feed from grains is an overestimate by the amount that will be exported or put into stocks. The estimates of feed available from potatoes and silage are "best" estimates. The estimate of feed available from hay and coarse fodder is a ~~maximum~~. The estimate of feed available from root and fodder crops is also probably a ~~maximum~~ since fulfillment of the planned production was assumed. The estimate of feed which will be available from pasture is probably a substantial overestimate since it assumes: (1) that there will be as much pasture area in 1960 as in 1954, and (2) that the per unit area productivity of pasture will equal 1945 U. S. productivity. It is probable that neither of these assumptions is correct. The estimate of feed which will be available from by-products probably is also a ~~maximum~~.

<sup>1/</sup> Daily Report, USSR and Eastern Europe, Feb 55, p. CC 7. U.  
(Khrushchev's Report on Livestock Produce)

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D. Feed Units Required for the Attainment of Khrushchev's Livestock Goals

In Tables 4 and 5, Appendix II, estimates are given of the total feed units required to meet Khrushchev's new meat and milk goals. The two estimates are 344 million metric tons and 386 million metric tons. The difference arises from alternative assumptions that the Soviets will achieve historical Soviet or U. S. livestock dressing percentages\* in 1960-61. It is possible that the Soviets will improve their dressing percentages somewhat by 1960-61, but it is unlikely that there will be any substantial improvement,\*\* and most unlikely that they will achieve U. S. ratios. Therefore, a 386 million ton requirement is probably a better estimate than 344. The estimates of Soviet feed requirements are based on estimates of feed used in 1941/42 in the U. S. to produce the relevant livestock products. Since the Soviets are unlikely to achieve this degree of efficiency by 1960-61, the estimates of feed requirements can be considered to be estimates of maximum requirements, under the conditions involved in the alternative assumptions discussed above.

The estimate of minimum feed requirements of 386 (or possibly 344) million tons of feed units required to attain Khrushchev's goals can be contrasted to the estimate of a maximum feed availability of 212 million tons, discussed in section II, C, above. The feed availability estimates have been made for 1960, but there is unlikely to be any large increase over the amounts by 1961. Thus, the estimated maximum feed availability is only 55% to 62% of the estimated minimum feed requirements.

\* The "dressing percentage" for a given category of livestock is the ratio of meat to live weight.

\*\* During the period 1940-55 there was practically no change in the dressing percentages of the livestock slaughtered by the Ministry of the Industry of Meat and Milk Products. 1/

1/ Proizvodstvo SSSR, 1957, p. 380

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No pretense should be made that these are precise predictions of what the Soviets will actually accomplish. The actual accomplishments will undoubtedly be a much smaller proportion of the goals (assuming average weather). The conclusion is that Khrushchev's goals are extremely unrealistic.\*

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\* The British authority on Soviet agriculture, Alec Nove, recently observed: "Everyone is agreed that the idea of increasing Soviet meat output  $3\frac{1}{2}$  fold by 1960 is fantastic, if not plain crazy,...1/  
1/ "The Khrushchev Livestock Plan" (Unpublished paper) 6 June 1957.

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III. Conclusions

If the conclusion is correct that Khrushchev's livestock goals are so unattainable that they are outlandish, what is the possible reason for setting up these goals? The establishment of impossible goals by the Soviet leadership is often interpreted as a means of exhorting the workers to achieve less ambitious and more realistic aims.\* In the present instance, however, wide international publicity has been given to the assertion that the achievement of these goals will greatly aid the USSR in its struggle to equal and surpass the capitalistic United States as the leading state in the per capita output of key food products. Clearly, a major goal is the attainment of the fullest possible propaganda benefit from any such achievements, real or unreal. The commitment of the Soviet Union to the attainment of the goals has been such that there is reason to speculate that the goals will be achieved, if only on paper. An examination of past performance claims in this field will support such a speculation. In fact, Khrushchev's claims for present meat and milk production appear to be statistical rather than real. <sup>1/</sup>

The Soviet indices for meat and milk output are as follows:

	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956**</u>
Meat:	100	96	106	120	129	130	132
Milk:	100	102	101	103	108	119	139

\* Indeed this is the conclusion of The Economist concerning the new meat and milk goals. <sup>2/</sup>

\*\*1950-1955 is from the official statistical handbook. <sup>3/</sup> 1956 is added on the basis of the 1956 plan fulfillment report. <sup>4/</sup>

Using these indices and Khrushchev's statements it is possible to construct an official Soviet series in millions of tons as follows:\*

	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Meat:	4.9	4.7	5.1	5.9	6.3	6.4	6.5
Milk:	35.3	36.1	35.7	36.4	38.2	42.1	49.1

Past estimates of absolute production for these years, made by Western analysts, have been considerably lower. The current M/Ag estimates of production (in million tons) for these years are as follows: 6/

	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Meat:	3.4	3.2	3.6	4.0	4.3	4.4	4.5
Milk:	31.2	31.9	31.6	32.2	33.7	37.2	43.4

Published prewar meat and milk output statistics, plus Khrushchev's admission in 1953 that livestock production was seriously lagging, appear to be inconsistent with the meat and milk output figures implied for the years 1950-1953 in the official Soviet meat and milk figures for these years. The complete explanation of the apparent overestimates is obscure, however there seems little doubt that some form of statistical gymnastic has been performed, similar (at least in result) to the pre-1953 method of reporting grain output in terms of "biological yields" which resulted in a 20-30% overestimate of grain production.\*\*

\* The series (consistent with Khrushchev's claims) was originally created on the basis of materials released by the Minister of Agriculture, V. V. Matskevich. 5/

\*\*For a more detailed discussion of this problem see the sections of this paper dealing with "Meat Production in the USSR," and "Milk Production in the USSR."

A specific example of statistical gymnastics concerning livestock appeared in Khrushchev's speech at the Twentieth Party Congress. <sup>7/</sup> He gave the following index of pig numbers (in percent of the year 1950): 1950 - 100; 1951 - 111; 1952 - 117; 1953 - 195; 1954 - 210; 1955 - 214. Khrushchev then commented as follows:

"If real organizing work is done on collective and state farms, exceptional results could be obtained in a year or two. Let us for instance take pig breeding. As can be seen from the above mentioned figures, we had an exceedingly insignificant increase in the number of pigs during the first two years of the Five-Year Plan but when concrete measures were taken in the sphere of developing pig breeding, the number of pigs increased sharply during the last three years." Using Soviet figures for pig numbers <sup>8/</sup> it is possible to show that Khrushchev constructed his index of pig numbers by using end-of-year (31 December) numbers for 1950 through 1952, and using 1 October numbers for 1953 through 1955. (The context of the speech, however, implies consistency in the census dates.) This change in census date resulted in a spurious increase in the index between 1952 and 1953, since end-of-year livestock numbers are near the low point for the year while October numbers are relatively high.

There is not sufficient information to permit the compilation of an index based either entirely on end-of-year numbers or on October numbers. However, the increase in pig numbers from December, 1950 to December, 1952 was 17%, considerably more than the 10% increase from October, 1953 to October, 1955, (the period



Khrushchev was boasting about in his speech at the Twentieth Party Congress). Thus Khrushchev's statement is completely misleading, in fact a falsification, when changes in pig numbers are based on comparable census dates.

As previously discussed, the propaganda emphasis of Khrushchev's boasted goals indicates that these claims may be something more than just a means of exhorting the peasants to greater accomplishments. If this is true, then the leadership has either deliberately chartered the course of the big lie, or Khrushchev and his more ardent followers are convinced that they can be achieved in fact.

Historical evidence provides some reason to conclude that the Soviet leadership has in fact convinced itself that these goals can and will be achieved. In the Soviet lexicon a plan, rather than embodying the Western concept of an outline of procedures by which probable goals might be achieved, long has been regarded as an embodiment of "law." Where failures have occurred the blame most often has been placed, not upon the plans, but upon disruptions caused by criminal and traitorous individuals. In the Soviet textbook on Political Economy published in 1954, state plans are described as "not prognostic plans, but directive plans." <sup>8/</sup> We have not been told as yet whether or not Khrushchev's goals have been formally embodied in a revision of the Sixth Five-Year Plan. If a formal plan has been developed it undoubtedly has the textbook's virtue of being "not prognostic."

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Khrushchev's star has been rising ever more rapidly in recent months. Certainly in the field of agriculture, where he seems to be most at home, his substitution of his own opinion for the findings of his experts implies that he may have fallen into the trap waiting for all dictators. Hitler believed his military genius surpassed that of his generals. Stalin quite apparently regarded himself as a universal genius whose thoughts were true reflections of social and economic law. But a few weeks prior to the repudiation of his own agricultural experts, in a speech delivered at a conference of agricultural workers at Gorkiy, Khrushchev made the following remark:

We must not demand of everyone the learning of an agriculturist, a zootechnician, a veterinary, or an engineer. But a leader must understand his job .... We, the leaders, are responsible for everything, therefore, we must understand everything. 9/

In spite of the strength of the arguments indicating that Khrushchev may have convinced himself that under his guiding genius the farms can achieve these astounding goals, the very incredibility of the goals, the total lack of any published plans providing rational and consistent means for achieving these goals, tends to suggest that his remarks could have been made as a first step in a deliberate attempt to deceive. The Soviet Union probably has capable analysts--who have the benefit of much important material unavailable in the West--who can illustrate--and according to Khrushchev's admission: apparently have illustrated--the physical impossibility of achieving these new livestock goals (given anything like near normal crop production years). If a program of deception has been adopted the

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evidence suggests that it has been designed to deceive, not Westerners, but uninformed backward people who have as yet to decide whether or not to follow the Soviet lead to hope for achievement of rapid material advances. Indeed in his Leningrad speech Khrushchev emphasized that just such people represented his target. The following are his words:

Comrades, I regard our victory to be a joint victory; political victory and not only an economic one ... . This will be the triumph of our cause, the triumph of Marxism-Leninism, and we will again clear the way in the consciousness of those people who vacillate, who have not yet taken up our ideology. I am not speaking of capitalists; it is impossible to reeducate them. Only the grave will cure the hunchback!

Our actions, aimed at raising the economy and at improving the people's well-being will exert on the minds of vacillators, an influence which will be stronger than other methods.

And such people will be more anxious to cooperate with us to side with Marxist-Leninist theory and with the working class in the struggle against capitalism. It will be a great thing, comrades! 10/

A Pravda editorial (of a few days later) dealing with these goals re-emphasized the external propaganda value of Khrushchev's move: "Not only the working people of the USSR, but also our innumerable friends throughout the world, will learn with pride that the party is putting forward such an imposing task ... . Do we possess the necessary conditions to solve this task with honor and once again demonstrate to the whole world the great advantage of the socialist system of economy? Yes, we do." 11/

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Sources to Section III, Conclusions

1. FBIS, 24-27 May 57, pp. CC 2-17 and 1-5, Eval. RR 2.
2. "Red Meat for Russians" The Economist, 1 Jun 57, p. 799-800.
3. Narodnoye Khozyaystvo SSSR, 1956, p. 101.
4. FBIS, 11 Feb 57, p. CC 14. C. Eval. RR 2.
5. State, Moscow, Desp. no 306, 10 Dec 56. OFF USE. Eval. RR 2.
6. "Milk Production in the USSR," "Meat Production in the USSR," sections and/of this paper.
7. Pravda, 15 Feb 56.
8. Narodnoye Khozyaystvo SSSR, 1956, p. 118.
9. Political Economy (Moscow, 1954--Translation), p. 270.
10. FBIS, 11 Apr 57, p. CC 6-23. Eval. RR 2.
11. FBIS, 24-27 May 57, p. CC 2-17 and 1-5, Eval. RR 2.
12. FBIS, 27 May 57, p. CC 6-9, Eval. RR 2.

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Table I - 1  
Metric tons

Estimated Maximum Feed Availability in 1960

Appendix I - 1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Production	Seed	Waste	Industrial Use	Food	Residual For Feed Export & Stocks	Relative Feed Value In Relation To Corn	Available Feed (in feed units) (col 6 x col 7)
Bread Grains	68.9 g/	11.8 b/	3.9 c/	0.9 d/	48.8 e/	3.5 f/	1.0 g/	3.5
Coarse Grains (excl. corn)	33.6 h/	5.6 i/	1.9 j/	0.9 k/	1 l/	25.2 m/	0.9 n/	22.7
Corn	42.4 o/	1.4 p/	4.1 q/	0.9 r/	s/	35.0 t/	1.0	35.0
Potatoes	105.0 u/	18.4 v/	10.5 w/	2.5 x/	40.0 y/	33.6 z/	0.22 aa/	7.4
Silage (excl. corn)	32.0 bb/		3.8 cc/			28.2 dd/	0.20 ee/	5.6
Hay and Coarse Fodder	141.0 ff/						0.40 gg/	56.4
Root And Fodder Crops	38.0 hh/						0.10 ii/	3.8
Pasture								68.0 jj/
By Products								10.0 kk/
Total								212.4

a/ The projected area of bread grain in 1960 is 84 million hectares (assumed to be the same as projected for 1962. 1/) The projected yield per hectare for 1960 is 110% of the "average" yield, defined here as the weighted average of the 1946-53 average yield (the period prior to the New Lands program), and the long term average yield (based on 1900-15 data) for the New Lands. This weighted average yield was obtained as follows:

- 1) The 1946-53 average yield was 7.9 c/ha (about the same as the average yield of 7.7 c/ha based on 1900-1915 data).
- 2) The long term average yield for the New Lands is estimated to be about 6 centners/hectare. 2/
- 3) The 1960 projected area of grain in the New Lands is 20 million hectares. 3/ Assume that 80% of this area will be in bread grain (the remainder being millet, buckwheat, corn, etc); hence 16 million hectares of bread grains in the New Lands in 1960.
- 4) The 1960 projected area of breadgrains outside of the New Lands is thus 68 million hectares ( $84-16=68$ ).
- 5) The yields given in 1) and 2), weighted by the areas given in 3) and 4), results in a weighted average yield of 7.5 centners per hectare.
- 6) This average yield has been increased by 10% to take account of probable reduction in crop losses resulting from improved harvesting techniques and possibly some yield increases resulting from increased use of fertilizers.

b/ 84 mil. ha times a seeding rate of 1.4 c/ha (see Grain Methodology section)

g/ 68.9 mil. tons times a waste factor of 5.7% (see Grain Methodology section)

g/ Assumed same as in 1955 (see Grain Methodology)

e/ 1960 population (end of year) projected at 216.8 million. Assume here that all grain consumed directly is bread grains (actually some coarse grains including corn is consumed directly). Furthermore assume a per capita direct consumption of grain of 225 kg per capita per year, which is about 1300-1850 calories per capita per day. The estimated prewar and 1950-54 consumption of grain ranged about 1780 to 1860 calories per capita per day. (See section \_\_, table \_\_, "Food Availability in the USSR. Expressed in terms of Calories per Capita per Day".) With additional consumption of livestock products it is possible that the direct consumption of grain may be reduced somewhat but the reduction is not likely to be substantial by 1960-61.

f/ By difference

g/ The feed value of wheat relative to corn is 1.05 and that of rye is 0.85. 4/ Weighting these feed values by the projected area of wheat and rye in 1960 (wheat--64 mil. ha; rye--20 mil ha) results in a weighted feed value of bread grains relative to corn of 1.0. (This method assumes the same yield for wheat and rye.)

h/ The projected area of coarse grains in 1960 is 40 mil. hectares.

(Assumed to be the same as projected for 1952. 5/ ) The projected yield per hectare of coarse grains in 1960 is 110% of the average 1946-56 yield of coarse grains. (The 1946-56 average yield of 7.6 c/ha is about the same as the average yield of 7.7 c/ha based on 1900-1915 data)

i/ 40 million hectares times a seeding rate of 1.4 c/ha (See Grain Methodology)

j/ 33.6 million m.t. times a waste factor of 5.7 percent. (See Grain Methodology)

k/ Industrial use of coarse grain (including corn) is assumed same as in 1955,

or 1.8 million m.t. (See Grain Methodology) Assume  $\frac{1}{2}$  of this quantity came from corn; hence 0.9 million tons of coarse grain (excluding corn) used industrially.

- l/ See footnote g/above.
- m/ By difference
- n/ The feed value of various coarse grains relative to corn is as follows:  
Barley = 0.95  $\frac{2}{3}$ ; Oats = 0.90  $\frac{2}{3}$ ; Millet = 0.85  $\frac{2}{3}$ ; Buckwheat = 0.80  $\frac{2}{3}$ .  
weighting these feed values by the rough projections of area for each of these grains in 1960 (barley = 11.5 mil. ha; oats = 15.0 mil. ha; millet = 8.0 mil. ha; buckwheat = 3.0 mil. ha) results in a weighted feed value of coarse grains relative to corn of about 0.90. (This method assumes the same yield for the various coarse grains, which is not quite the case since millet and buckwheat yield somewhat less, but the error is relatively small)
- o/ 8/ This corn figure is in terms of feed units and includes the feed value of the entire corn plant.
- p/ 28 mil. hectares of corn times a seeding rate of 0.5 c/ha (see Grain Methodology).
- q/ 39.7 million tons times a waste factor of 10 percent. The 10 percent waste factor is an intermediate value between the loss of 8.4 percent assumed for dry corn grain and the 12 percent loss factor assumed for corn silage (see Grain Methodology).
- r/ See footnote k/ above.
- s/ See footnote g/above.
- t/ By difference



u/ The potato acreage goal for 1960 is 10.5 million hectares. 2/ The estimated average yield per hectare for the 1950-56 period is about 91 centners per hectare. Assume a 10 percent increase in yields due primarily to an increase in the use of mineral fertilizers; the projected yield per hectare is thus about 100 c/hectare.

v/ 10.5 million hectares times a seeding rate of 1,750 kilograms per hectare. (See Potato Methodology)

w/ 105 million tons times a waste factor of 10 percent. (See Potato Methodology)

x/ 10/

y/ See Potato Methodology

z/ By difference

aa/ Morrison, Feeds and Feeding, p. 1137.

bb/ Assumed same as in 1953 11/

cc/ Assuming a waste factor of 12% as in corn silage. (See Grain Methodology)

dd/ By difference

ee/ 12/

ff/ Khrushchev gave the 1953 coarse fodder production on collective and state farms as 129 million tons. To this figure has been added 12 million tons of straw from coarse grains that it is estimated will be produced in 1960 in excess of the 1953 production. The figure of 12 million tons of straw was arrived at as follows: The projected coarse grain production in 1960 is 8 million tons more than the estimated 1953 production. Assuming a straw to grain ratio of 1.5, 13/ the amount of straw produced in 1960 would be 12 million tons greater than in 1953. (Only straw from the additional coarse grain has been considered here since straw from bread grains is much less palatable. 14/)

gg/ 15/ This is probably an over estimate because of the large amount of straw included in this category. The hay alone probably would have a relative feed value of about 0.40 but the relative feed value of the straw probably would be around 0.25. 16/

hh/ Assume that the planned production for 1960 as outlined by Khrushchev 17/ is achieved.

ii/ In the U.S. in 1945 the total feed units from pasture totaled 89.3 million tons. 18/ In 1945 the total pasture area in the U.S. was 370 million hectares. 19/ ( (1) Pasture in farms = 214 million hectares; (2) Pastured forest and woodland = 38 million hectares; (3) Pasture and grazing land = 118 million hectares.)

Dividing total feed units (89.3 million m.t.) by total area (370 million hectares) gives a figure of 0.24 metric tons per hectare.

The pasture area in the USSR in 1954 was about 282 million hectares. 20/ (All Agricultural Land = 486.4 million hectares less Tilled Land = 204.8 million hectares.) Multiplying 282 million hectares times 0.24 metric tons of feed units per hectare gives an estimate of 68 million tons of feed units from pasture. This is probably an over estimate because of two underlying assumptions: 1) That the amount of pasture in USSR will be the same in 1960 as in 1954; 2) That the per unit area productively of pastures in the USSR in 1960 will be the same as that of the U.S. pastures in 1945.

kk/ This is a rough estimate but in all likelihood an over estimate. The feed use of these products in the U.S. in 1941-42 amounted to about 18 million tons (in feed units). 21/ The area of crops from which oil seed cake is obtained as a by-product is about twice as large in the U.S. as in the USSR.

- 1/ contribution to the NIE (ORR Project .
- 2/ CIA/RR 87. The New Lands Program in the USSR, 28 January 1957, p. 68, S.
- 3/ ORR Project "-----"
- 4/ USDA Circular No. 836, Consumption of Feed by Livestock, 1909-47.  
Relation Between Feed, Livestock, and Food at the National Level, R.D.  
Jennings, Dec. 1949, p. 53.
- 5/ ORR Project "-----"
- 6/ USDA. Circular No. 836, p. 53.
- 7/ Morrison, Frank B., Feeds and Feeding, 1951, p. 1139-40.
- 8/ See Section \_\_\_\_ Table \_\_\_\_ of this paper ("Corn Production Possibilities  
in the Soviet Union")
- 9/ Kartofel', #4, 1956, p. 27.
- 10/ ORR Project "The Production of Synthetic Alcohol in the USSR",  
4 April 1957, Table 4, p. 14.
- 11/ FBIS, USSR and Eastern Europe, Feb 7, 1955, p. CC30 (Khrushchev's report  
on Livestock Produce).
- 12/ USDA. Circular No. 836, p. 54.
- 13/ Ibid. 8/above.
- 14/ Morrison, F.B., Feeds and Feeding, 1951, p. 437
- 15/ Johnson, D. Gale. Livestock Goals of the Soviet Union: Long Term and  
Sixth Five-Year Plan. U. of Chicago Office of Agricultural Economics  
Research Paper No. 5619, November 3, 1956, p.8.
- 16/ USDA. Circular No. 836, p. 54.
- 17/ Johnson, D. Gale. Research Paper No. 5619, p. 8.

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Appendix I - 8

- 18/ USDA. Circular No. 836, p. 74.
- 19/ U.S. Agricultural Statistics, 1955, p. 428.
- 20/ Narodnoye Khozyaystvo SSSR, p. 103.
- 21/ Jennings, R.D. Feed Consumed by Livestock, 1941-42, April 1946, p. 76.

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Estimate of Feed Units Required to Attain  
Khrushchev's Livestock Goals

## A. Table 1

Khrushchev's 1961 or '62 Meat Goals 1/ (Million Metric Tons)

Beef and Veal	7.2
Pork	10.2
Mutton (and Goat?)	1.2
Poultry	1.5
Total	20.1

## Table 2

Table 1 - High/Low Dressing Percentages:

Live Weight Required to Produce Khrushchev's Meat Goals

	<u>Dressing %</u>	<u>Live Weight Required (Million Metric Tons)</u>
Beef and Veal	42.4	16.98
Pork	61.0	16.72
Mutton and Goat	39.7	3.02
Poultry	(65.0)**	2.31

\* These dressing percentages are practically identical with recently released Soviet figures.<sup>3/</sup> "Dressing percentages" are the ratio of meat to live weight. Since "meat" may be defined in various ways (as including or excluding lard, for example) one must know the appropriate definition of "meat" in order to have the appropriate dressing percentage. Dressing percentages are used in computing the live weights required to produce Khrushchev's "meat" goals, in Tables 2 and 3. The dressing percentages in Tables 2 and 3 do not include edible offal but do include lard. It is not entirely clear whether or not the Khrushchev meat goals are exclusive of edible offal and inclusive of lard. In Tables 2 and 3 it is assumed that they meet this definition. If they do not, the estimated live weights required in Tables 2 and 3, and the estimated feed units required in Tables 4 and 5 are in error, but not by more than a few percentage points.

\*\* Assumed.

1/ FBIS #106, June 3, 1957, pp. CC 1-13.

2/ Dsp. #6, Am. Emb., Moscow, 13 Feb 45, Appendix #2, Table 4, p. 5.

3/ Promyshlennost SSSR, 1957, p. 380.

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Appendix II - 2

Case II - Attainment of U. S. Dressing Percentages by 1961 or '62

Soviet historical dressing percentages have been considerably below U. S. rates. In his Leningrad speech <sup>1/</sup> Khrushchev spoke of a meat/live-weight ratio (63%) which implied a goal of the attainment of U. S. dressing percentages by 1960.

The Soviets may improve their livestock dressing percentages somewhat in the future, but they are unlikely to attain U. S. rates by 1960.

Table 3 - U. S. Dressing Percentages. Live Weight Required to Produce Khrushchev's Meat Goals.

	<u>U.S. Dressing % 2/</u>	<u>Live Weight Required (Million Metric Tons)</u>
Cattle and Calves	54.8	13.14
Hogs	70.4	14.49
Sheep and Lambs	47.7	2.52
Poultry	(65.0)*	<u>2.31</u>
		32.46
	<u>20.1 (Khrushchev's meat goals)</u>	= 62%
	32.46	

\* Assumed

<sup>1/</sup> FBIS #101, 24 May 57, CC 7.

<sup>2/</sup> Excluding edible offal.

Derived from data presented in U.S. Department of Agriculture,  
Agricultural Marketing Service, Crop Reporting Board, Washington, D.C.  
Mc An 1-2-3 (57), May 3, 1957

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B. Feed Units Required

Case I - The Attainment of Historical Dressing Percentages, and Thus the Required Production of the Live Weights in Table 2.

Table 4 - 1961-62, Feed Units Required

	<u>Product</u> (million metric tons)	<u>Feed Units*</u> (kgs. per 100 kgs. of production)	<u>Total Feed Units</u> (million metric tons)
Beef & veal	16.98	769	130.6
Pork	16.72	466	77.9
Mutton & Goat	3.02	434.5	13.1
Poultry	2.31	1465 ***	33.8
Milk	82.00**	123.1	100.9
Horses			30.0****
Total			386.3

\* All the feed unit values, except for poultry are from source 1/

1/ D. Gale Johnson, Livestock Goals of the Soviet Union: Long-Term and Sixth Five Year Plan, The University of Chicago Office of Agricultural Economics Research Paper No. 5619, Nov 3, 1956, p. 13.

\*\* 1960 milk goal given by Katshevich 2/. There is no apparent contradiction between this goal and Kharushchev's more recently stated aim of catching up with the U. S. in per capita milk production by 1958 3/. The latter aim implies a 1958 milk goal of approximately 71 million tons.

\*\*\* Includes feed used in producing eggs. 4/

2/ State, Moscow, Despatch 306, 10 Dec 56.

3/ FBIS, 24 and 27 May 57, CC 2-17 and CC 1-6,

4/ Jennings, R. D., Feed Consumed by Livestock 1941-42, U. S. Department of Agriculture, Washington, 1946, B.A.E., p. 60; and Agricultural Statistics 1946, U.S. Department of Agriculture, B.A.E., p. 420 and 428.

\*\*\*\* In the U. S. the approximately 14 million horses and mules used about 30 million tons of all feed units. In 1956 there were 13.4 million (estimated) horses in the USSR. There will probably not be any appreciable decrease in this number by 1961-62.

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Appendix II - 4

Case II - The Attainment of U. S. Dressing Percentages by 1961-62, and  
Thus the Required Production of the Live Weights in Table 3.

Table 5 -                      1961-62, Feed Units Required

	<u>Product</u> (million metric tons)	<u>Feed Units *</u> (kgs. per 100 kgs. of production)	<u>Total Feed Units</u> (million metric tons)
Beef & veal	13.14	769	101
Pork	14.49	466	67.5
Mutton & goat	2.52	434.5	10.9
Poultry	2.31	1465.1 ***	33.8
Milk	82.00 **	123.1	100.9
Horses	-	-	30.0 ****
Total			344.1

\* See footnotes to Table 4

\*\* See footnotes to Table 4

\*\*\* See footnotes to Table 4

\*\*\*\* See footnotes to Table 4

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